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SHORT REPORT

Aneurysm of the Celiacomesenteric Trunk: A Rare Anomaly

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Abstract A celiacomesenteric trunk (CMT) aneurysm is extremely uncommon in splanchnic aneurysm, accounting for less than 0.5% of the population. We report a case of CMT aneurysm that led to surgical treatment. The patient underwent excision of the aneurysm with successful vascular reconstruction. Only eight cases of CMT aneurysm have been reported so far. Awareness of congenital vascular anomalies and grasp of embryologic development are necessary for adequate surgical intervention.

Introduction

Anomalies of the celiac trunk and mesenteric arteries have been well recognized and established.[1] The celiacomesenteric trunk (CMT), having a common origin with the celiac artery and superior mesenteric artery (SMA) from the abdominal aorta is quite rare, accounting for less than 1% of all splanchnic arterial anomalies, and its incidence is estimated at 0.25%.[1–3] Furthermore, aneurysmal lesions arising from CMT has been reported in only eight cases in the literature. We describe the ninth case of CMT aneurysm, which is the third case in Japan.

Case Report

A 46-year-old man was referred to our institution for asymptomatic aneurysm of the celiac artery during routine medical examination by abdominal ultrasound. Results of systemic examinations including blood pressure and other laboratory investigations were unremarkable. Three-dimensional computed tomography (3D-CT) and visceral arteriogram revealed a common CMT with a 3-cm aneurysm contiguous to the orifice of the SMA. The common hepatic and splenic artery originated from the distal side of the aneurysm (Fig. 1 A, B).

Surgical treatment was performed via median laparotomy, and the CMT aneurysm was exposed through the gastrohepatic omentum. The aneurysm was saccular, arising adjacent to the SMA, and including the origins of the splenic, and common hepatic arteries. The aneurysm was completely resected at the origins of the splenic and common hepatic artery, and directly anastomosed with the

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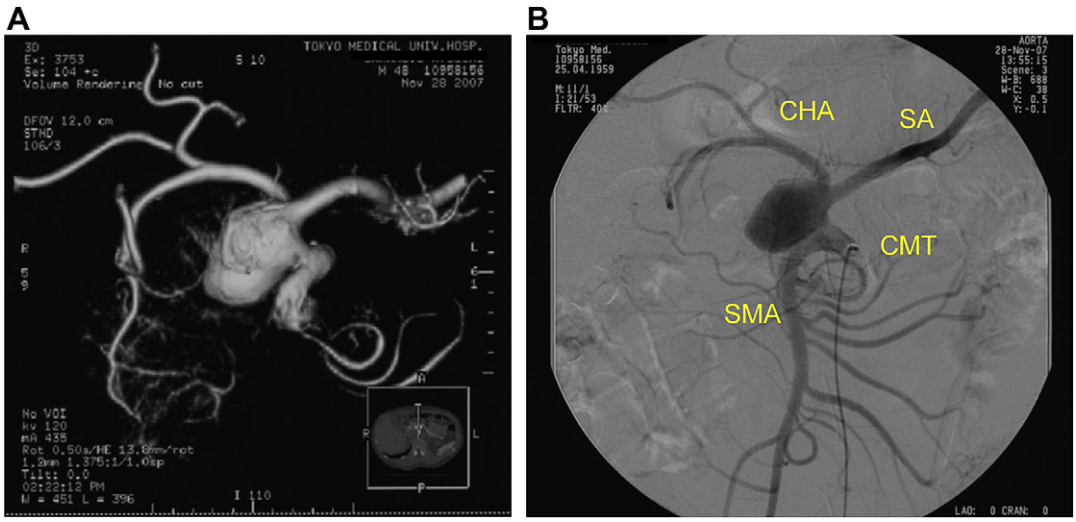

Figure 1 A, 3D-CT demonstrates a common CMT with a 3-cm aneurysm arising proximal to the orifice of the SMA. B, The same findings as 3D-CT were recognized on visceral arteriogram. SMA, superior mesenteric artery; CHA, common hepatic artery; SA, splenic artery; CMT, celiacomesenteric trunk.

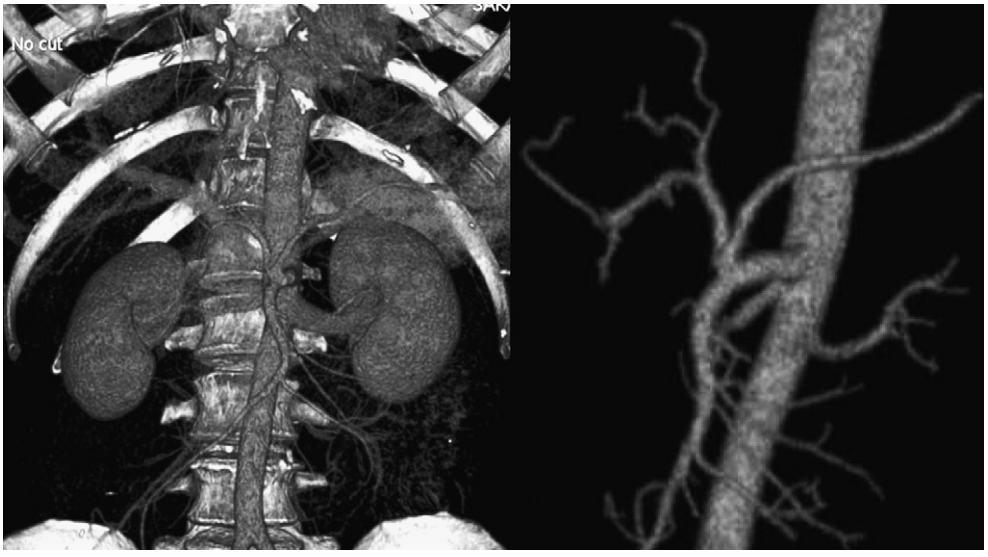

Figure 2 Postoperative 3D-CT showed patent arteries of abdominal branch and complete excision of the aneurysm.

Table 1 Reported cases of operative repair of CMT aneurysm.

Author	Year	Age/Gender	Repair	Histology
Stanley *et al.*	1970	48/M	Aneurysmectomy	n.m.
Bailey *et al.*	1991	46/F	Aneurysmectomy, polyester patch	MD, atherosclerosis
Detroux *et al.*	1998	51/M	Aneurysmectomy, suture of neck	Atherosclerosis
Matsumoto *et al.*	1999	53/M	Aneurysmectomy, PTFE graft interposition	Atherosclerosis
Kalra *et al.*	2003	52/M	Aneurysmectomy, reimplantation of celiac	True aneurysm
Ailawadi *et al.*	2004	n.m.	trunk	n.m.
		n.m.	Dacron graft interposition	n.m.
Matsuda *et al.*	2006	36/M	Thoracic aorto-CMT PTFE by pass	Medial necrosis
Present case	2009	46/M	Direct anastomosis	Atherosclerosis

n.m.: Not mentioned, PTFE: Polytetrafluoroethylene, MD: Medial degeneration.

celiac arterial wall in side-to-side fashion. The histopathologic examination revealed atherosclerotic aneurysm with no evidence of vasculitis or fibromuscular dysplasia. Postoperative 3D-CT recognized patent arteries of the abdominal branch (Fig. 2). The postoperative course was also uneventful, and the patient was discharged on the 13th postoperative day.

Discussion

Splanchnic arteries arise in the fourth week of fetal development, coexisting with the paired ventral segmental (vitelline) arteries from the 2 dorsal aortae.[4] As Ailawadi[5] mentioned in his report, variations in celiac and mesenteric arteries are supposed a result from variation in the involution from the 10th to 12th ventral segmental arteries, resulting in the persistence of the 13th ventral segmental artery, and common origin of both the celiac and superior mesenteric arteries, in other words, CMT. Persistent embryonic arteries, including persistent sciatic artery, tend to show congenital faults in the vascular layers. This may have relevance to aneurysm formation from this embryonic weakpoint.

To our knowledge, only 8 cases of the CMT aneurysm have been reported in the literature, and all cases were successfully treated by surgical intervention (Table 1). These patients were treated by direct anastomosis in 2 patients, aneurysmectomy and reconstruction by polyester patch plasty in 1 patient, aneurysmectomy and suture of the neck in 1 patient, and bypass or interposition with prosthetic graft in 3 patients. Because our case was young and sufficient dissection of CMT aneurysm, SMA, common hepatic and splenic arteries was achieved, we performed direct anastomosis, which enabled complete excision of the aneurysm and bloodflow to the other abdominal organs.

CMT aneurysm and the other splanchnic aneurysm are so asymptomatic that most cases are diagnosed by abdominal echography in medical checkup or accidental CT or MRA, when suspected another disease. Usually, with respect to the surgical repair, it depends on the size, location, range, and risk of rupture of the aneurysm.

Conflict of Interest/Funding

None.

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